

# CHEST Physician®



Catherine Hackett/MDedge News

**Dr. John J.V. McMurray,**  
professor of medical  
cardiology at the University  
of Glasgow

## Pneumonia, death risks soar in heart failure patients

BY RICHARD MARK KIRKNER

MDedge News

**P**atients with heart failure get pneumonia at a rate almost three times greater than expected and, once they do get pneumonia, have about a fourfold greater risk of death, investigators for a retrospective analysis of 13,000 patients from two landmark randomized HF trials have found.

The investigators also found that HF patients with preserved ejection fraction (HFpEF) are at the highest risk of developing pneumonia.

The analysis showed that 6.3% of patients in the PARADIGM-HF trial and 10.6% of those in the PARAGON-HF trial developed pneumonia, reported the study authors, led by John J.V. Mc-

Murray, MD, of the British Heart Foundation Cardiovascular Research Center at the University of Glasgow (J Am Coll Cardiol. 2021;77:1961-73).

“The main reason for doing this study was the fact that many heart failure patients are not vaccinated, as they should be, against pneumonia – both pneumococcus and influenza vaccination,” Dr. McMurray said in an interview.

### PARADIGM-HF and PARAGON-HF

The post hoc analysis consisted of 8,399 patients with HF with reduced ejection fraction (HFrEF) in PARADIGM-HF (Eur J Heart Fail. 2013 Sep;15[9]:1062-73) and 4,796 patients with

**PNEUMONIA** // continued on page 6

## COVID-19 infection conveys only partial immunity

BY NEIL OSTERWEIL

MDedge News

**D**o your patients think that getting COVID-19 is fully protective against subsequent reinfection? Tell it to the Marines.

A study of U.S. Marine recruits on their way to boot camp at Parris Island, S.C., showed that those who were seropositive at baseline, indicating prior exposure to SARS-CoV-2, remained at some risk for reinfection. They had about one-fifth the risk of subsequent infection, compared with seronegative recruits during basic training, but reinfections did occur.

The study, by Stuart C. Sealfon, MD, of Icahn School of Medicine at Mount Sinai in New York, and colleagues, was published The Lancet Respiratory Medicine (2021 Apr 15. doi: 10.1016/S2213-2600[21]00158-2).

“Although antibodies induced by initial infection are largely protective, they do not guarantee effective SARS-CoV-2 neutralization activity or immunity against subsequent infection,” they wrote.

An infectious disease specialist who was not involved in the study said that the findings

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# Airborne virus is driver of SARS-CoV-2 transmission

BY DAMIAN MCNAMARA

The scientific evidence for airborne transmission of the SARS-CoV-2 virus from different researchers all point in the

same direction – that infectious aerosols are the principal means of person-to-person transmission, according to experts. Not that it’s without controversy. The science backing aerosol trans-

mission “is clear-cut, but it is not accepted in many circles,” Trisha Greenhalgh, PhD, said in an interview. “In particular, some in the evidence-based medicine movement and some infectious diseases clini-

cians are remarkably resistant to the evidence,” added Dr. Greenhalgh, professor of primary care health sciences at the University of Oxford (England). “It’s very hard to see why, since

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the evidence all stacks up,” Dr. Greenhalgh said.

“The scientific evidence on spread from both near-field and far-field aerosols has been clear since early on in the pandemic, but there was resistance to acknowledging this in some circles, including the medical journals,” Joseph G. Allen, DSc, MPH,

told this news organization when asked to comment.

“This is the week the dam broke. Three new commentaries came out ... in top medical journals – BMJ, The Lancet, JAMA – all making the same point that aerosols are the dominant mode of transmission,” added Dr. Allen, associate professor of exposure

assessment science at the Harvard School of Public Health in Boston.

The investigators point to an increase in COVID-19 cases in the aftermath of so-called “super-spreader” events, spread of SARS-CoV-2 to people across different hotel rooms, and the relatively lower transmission detected after outdoor events.

### Top 10 reasons

They outlined 10 scientific reasons backing airborne transmission in a commentary published online April 15 in The Lancet (2021. doi: 10.1016/S0140-6736[21]00869-2):

- The dominance of airborne transmission is supported by long-range transmission observed at super-spreader events.
- Long-range transmission has been reported among rooms at COVID-19 quarantine hotels, settings where infected people never spent time in the same room.
- Asymptomatic individuals account for an estimated 33%-59% of SARS-CoV-2 transmission, and could be spreading the virus through speaking, which produces thousands of aerosol particles and few large droplets.
- Transmission outdoors and in well-ventilated indoor spaces is lower than in enclosed spaces.
- Nosocomial infections are reported in health care settings where protective measures address large droplets but not aerosols.
- Viable SARS-CoV-2 has been detected in the air of hospital rooms and in the car of an infected person.
- Investigators found virus in hospital air filters and building ducts.
- It’s not just humans – infected animals can infect animals in other cages connected only through an air duct.
- No strong evidence refutes airborne transmission, and contact tracing supports secondary transmission in crowded, poorly ventilated indoor spaces.
- Only limited evidence supports other means of SARS-CoV-2 transmission, including through fomites or large droplets.

“We thought we’d summarize [the evidence] to clarify the arguments for and against. We looked hard for evidence against but found none,” Dr. Greenhalgh said.

“Although other routes can contribute, we believe that the airborne route is likely to be dominant,” the authors note.

The evidence on airborne transmission was there very early on but the Centers for Disease Control and Prevention, World Health Organization, and others repeated the message that the primary concern was droplets and fomites.

The National Institute for Health Research, Economic and Social Research Council, and Wellcome support Dr. Greenhalgh’s research. Dr. Greenhalgh and Dr. Allen reported no relevant financial relationships.

*A version of this article first appeared on Medscape.com.*

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## Pneumonia vaccination is key // continued from page 1

HFpEF in PARAGON-HF (N Engl J Med. 2014 Sep 11;371[11]:993-1004). The analysis focused on the 528 and 510 patients in each study, respectively, who developed pneumonia. Those rates translated to an incidence rate of 29 per 1,000 patient-years (95% confidence interval, 27-31) in PARADIGM-HF and 39 per 1,000 patient-years (95% CI, 36-42) in PARAGON-HF.

After pneumonia, the risk of death in patients increased substantially. In PARADIGM-HF, the adjusted hazard ratio for the risk of death from any cause after pneumonia was 4.34 (95% CI, 3.73-5.05). In PARAGON-HF, it was 3.76 (95% CI, 3.09-4.58). HF patients who contracted pneumonia also tended to have HF longer than their counterparts who didn't develop pneumonia, but the frequency of previous hospitalization for HF didn't vary between the pneumonia and no-pneumonia groups.

Patients who developed pneumonia tended to be older (average age of 66.9 years vs. 64.6 years,  $P < .001$ ) and male (83.9% vs. 77.8%,  $P < .001$ ). The mean age of patients in PARADIGM-HF was almost a decade younger than those in PARAGON-HF, 64 vs. 73 years.

Pneumonia patients also had worse Kansas City Cardiomyopathy Questionnaire scores (76 vs. 80 on average), but no difference in New York Heart Association functional class. "In general, patients who developed pneumonia had more symptoms and signs and HF than those who did not develop pneumonia," Dr. McMurray and colleagues wrote.

Pneumonia patients also had higher rates of chronic obstructive pulmonary disease (26% vs. 12%), diabetes (43% vs. 34%), and atrial fibrillation (46% vs. 36%).

Another reason for conducting the study, Dr. McMurray said, "was the prior findings in patients with coronary disease and acute myocardial infarction that the risk associated with an episode of pneumonia [e.g., in subsequent vascular events and deaths] persisted long after the acute event. We wanted to see if this was also the case for heart failure, and indeed it was."

For example, the adjusted HR for cardiovascular death or hospitalization in the first month following an episode of pneumonia was 9.48 (range of 6.85-13.12,  $P < .001$ ), leveling off to 1.59 after 3 months or more.

### Vaccination crucial in HF patients

Dr. McMurray noted that this study emphasizes the importance of pneumonia vaccination for patients with HF. "Given that we have so few treatments to offer patients with HFpEF, this makes the potential value of vaccination in these patients all the greater," he said.

The COVID-19 pandemic, Dr. McMurray said, is a "good reminder of the dangers of a respiratory infection and the importance of vaccination in these patients. COVID-19 has interesting parallels in being a systemic disease and one with postacute, persisting effects."



Dr. Ludmir

Jonathan Ludmir, MD, critical care cardiologist at the Corrigan Minehan Heart Center ICU at Mass General and an instructor of medicine at Harvard Medical School, both in Boston said in an interview, "While the study provides an interesting perspective, heart failure patients are at increased risk for many infections

and in general have poorer outcomes. In addition, there have been studies similar to this in the past. That being said, this is an important concept to emphasize – heart failure patients have significantly poorer outcomes, are at higher risk for developing pneumonia, and have higher mortality once they develop pneumonia. Clinicians need to be vigilant when heart failure patients develop pneumonia, given their overall poorer outcomes. This study also emphasizes the importance of adopting a preventative approach to all patients, including heart failure patients, by emphasizing the importance of vaccines."

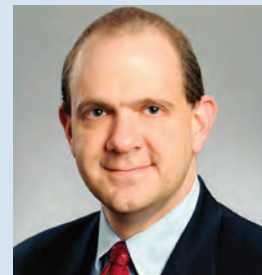
The persistent risk for adverse cardiovascular events 3 months and later after pneumonia is a novel finding of the study, wrote Donna Mancini, MD, and Gregory Gibson, MD, in an invited commentary (J Am Coll Cardiol. 2021;77:1974-6). Both are with the Icahn School of Medicine at Mt. Sinai in New York.

Novartis provided funding for the PARADIGM-HF and PARAGON-HF trials, and Dr. McMurray and coauthors disclosed financial relationships with Novartis. Dr. Mancini and Dr. Gibson have no relevant financial relationships to disclose.

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NEWS

List of COVID-19 high-risk comorbidities expanded

BY RICHARD FRANKI  
MDedge News

The list of medical comorbidities associated with high risk for severe COVID-19 now includes moderate to severe asthma, diabetes, and substance use disorders, according to the Centers for Disease Control and Prevention.

The CDC's latest list consists of 17 conditions or groups of related conditions that may increase patients' risk of developing severe outcomes of COVID-19, the CDC said on a

web page intended for the general public.

On a separate page, the CDC defines severe outcomes "as hospitalization, admission to the intensive care unit, intubation or mechanical ventilation, or death."

Asthma is included in the newly expanded list with other chronic lung diseases such as chronic obstructive pulmonary disease and cystic fibrosis; the list's heart disease entry covers coronary artery disease, heart failure, cardiomyopathies, and hypertension, the CDC said.

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Comorbidities associated with high risk for severe COVID-19

Cancer	Liver disease
Chronic kidney disease	Overweight and obesity
Chronic lung diseases	Pregnancy
Dementia or other neurological conditions	Sickle cell disease or thalassemia
Diabetes (type 1 or type 2)	Smoking, current or former
Down syndrome	Solid organ or blood stem cell transplant
Heart conditions	Stroke or cerebrovascular disease
HIV infection	Substance use disorders
Immunocompromised state	

Note: "Severe" defined as hospitalization, admission to intensive care unit, intubation or mechanical ventilation, or death.

Source: Centers for Disease Control and Prevention

Young people who have had COVID-19 may overestimate their immunity

// continued from page 1

provide further evidence about the level of immunity acquired after an infection.

"It's quite clear that reinfections do occur, they are of public health importance, and they're something we need to be mindful of in terms of advising patients about whether a prior infection protects them from reinfection," Mark Siedner, MD, MPH, FCCP, a clinician and researcher in the division of infectious diseases at Massachusetts General Hospital, Boston, said in an interview.

The study results reinforce that "not all antibodies are the same," said Sachin Gupta, MD, an attending physician in pulmonary and critical care medicine at Alameda Health System in Oakland, Calif. "We're seeing still that 10% of folks who have antibodies can get infected again," he said in an interview.

CHARM initiative

Dr. Sealfon and colleagues presented an analysis of data from the ironically named CHARM (COVID-19 Health Action Response for Marines) prospective study.

CHARM included U.S. Marine recruits, most of them male, aged 18-20 years, who were instructed to follow a 2-week unsupervised quarantine at home, after which they reported to a Marine-supervised facility for an additional 2-week quarantine.

At baseline, participants were tested for SARS-CoV-2 immunoglobulin G (IgG) seropositivity, defined as a dilution of 1:150 or more on receptor-binding domain and full-length spike protein enzyme-linked immunosorbent assay (ELISA).

The recruits filled out questionnaires asking them to report any

of 14 specific COVID-19-related symptoms or any other unspecified symptom, as well as demographic information, risk factors, and a brief medical history.

Investigators tested recruits for SARS-CoV-2 infection by polymerase chain reaction (PCR) assay at weeks 0, 1, and 2 of quarantine, and any who had positive PCR results during quarantine were excluded.

Participants who had three negative swab PCR results during quarantine and a baseline serology test at the beginning of the supervised quarantine period – either seronegative or seropositive – then went on to their basic training at the Marine Corps Recruit Depot, Parris Island.

The participants were followed prospectively with PCR tests at weeks 2, 4, and 6 in both the seropositive and seronegative groups, and sera were obtained at the same time.

Holes in immunologic armor

Full data were available for a total of 189 participants who were seropositive and 2,247 who were seronegative at enrollment.

In all, 19 of 189 seropositive recruits (10%) had at least one PCR test positive for SARS-CoV-2 infection during the 6-week follow-up period. This translated into an incidence of 1.1 cases per person-year.

Of the 2,247 participants seronegative at baseline, 1,079 tested positive (6.2 cases per person-year; incidence rate ratio 0.18).

It appeared that antibodies provided some protection for seropositive recruits, as evidenced by a higher likelihood of infection among those with lower baseline full-length spike protein IgG titers than in those with higher baseline

titers (hazard ratio 0.4,  $P < .001$ ).

Among the seropositive participants who did acquire a second SARS-CoV-2 infection, viral loads in mid-turbinate nasal swabs were about 10-fold lower than in seronegative recruits who acquired infections during follow-up.

"This finding suggests that some reinfected individuals could have a similar capacity to transmit infection as those who are infected for the first time.

The rate at which reinfection occurs after vaccines and natural immunity is important for estimating the proportion of the population that needs to be vaccinated to suppress the pandemic," the investigators wrote.



Dr. Gupta

Baseline neutralizing antibody titers were detected in 45 of the first 54 seropositive recruits who remained PCR negative throughout follow-up, but also in 6 of 19 seropositive participants who became infected during the 6 weeks of observation.

**Lessons**

Both Dr. Siedner and Dr. Gupta agreed with the authors that the risks for reinfection that were observed in young, physically fit people may differ for other populations, such as women (only 10% of seropositive recruits and 8% of seronegative recruits were female), older patients, or those who are immunocompromised.

Given that the adjusted odds ratio for reinfection in this study was

nearly identical to that of a recent British study comparing infection rates between seropositive and seronegative health care workers, the risk of reinfection for other young adults and for the general population may be similar, Dr. Sealfon and colleagues wrote.

Adding to the challenge of reaching herd immunity is the observation that some patients who have recovered from COVID-19 are skeptical about the need for further protection.

"There are patients who feel like vaccination is of low benefit to them, and I think these are the same people who would be hesitant to get the vaccine anyway," Dr. Gupta said.

Although no vaccine is perfect – the vaccine failure rate from the mRNA-based vaccines from Moderna and Pfizer/Biontech is about 5% – the protections they afford are unmistakable, Dr. Siedner said.

The investigators stated, "Young adults, of whom a high proportion are asymptotically infected and become seropositive in the absence of known infection, can be an important source of transmission to more vulnerable populations. Evaluating the protection against subsequent SARS-CoV-2 infection conferred by seropositivity in young adults is important for determining the need for vaccinating previously infected individuals in this age group."

The study was funded by the Defense Health Agency and Defense Advanced Research Projects Agency. Dr. Sealfon, Dr. Siedner, and Dr. Gupta have no conflicts of interest to report. Dr. Gupta is a member of the editorial advisory board for this publication.

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# Guidelines advise expanded use of high-flow oxygen

BY HEIDI SPLETE

MDedge News

**H**ospitalized patients with acute respiratory failure can benefit from high-flow nasal oxygen in certain settings, according to a new clinical guideline from the American College of Physicians.

High-flow nasal oxygen (HFNO) has demonstrated advantages including improved oxygenation and ventilation, wrote Arianne K. Baldomero, MD, of Minneapolis Veterans Affairs Health Care System and the University of Minnesota, Minneapolis, and colleagues. “However, the comparative benefits and harms of HFNO in clinical outcomes, including mortality, intubation, hospital length of stay, patient comfort, clearance of airway secretions, and reduced work of breathing are not well known.”

In the guideline, published in *Annals of Internal Medicine* (2021 Apr 27. doi: 10.7326/M20-4675), the authors recommend the use of high-flow nasal oxygen in hospitalized patients for initial or postextubation management of acute respiratory failure. The target population includes those patients treated in

hospital wards, EDs, intermediate/step-down units, and ICUs.

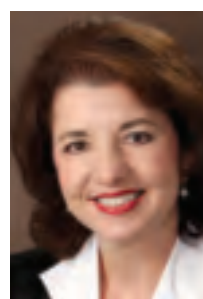
Use of HFNO therapy as a form of noninvasive respiratory support for hospitalized patients has increased in recent years. The treatment involves delivering warm, humidified oxygen via nasal cannula at a flow level higher than the patient’s inspiratory flow.

Potential benefits of HFNO include greater patient comfort, improved compliance, and psychological benefits, according to the authors. HFNO also can be used as respiratory support in critically ill patients for a number of indications including respiratory failure or support post extubation; however, treatment of patients with COVID-19 and related conditions were not considered in the guideline.

The guideline was based on evidence comparing HFNO with conventional oxygen therapy (COT) and noninvasive ventilation (NIV). The authors reviewed 29 randomized, controlled trials that showed clinically meaningful outcomes in HFNO patients, as well as similar rates of, or reductions in, mortality, intubations, and hospital-acquired pneumonia, and increased reports of patient com-

fort. Data also supported the safety of HFNO with few, if any, contraindications other than problems with fitting the nasal cannula.

Across several trials comparing HFNO and NIV for initial management of acute respiratory failure, HFNO reduced all-cause mortality, intubation, and hospital-acquired pneumonia, although the authors categorized the results as “low-certainty evidence.”



Dr. Fincher

authors concluded that HFNO may reduce rates of reintubation and improve patient comfort, also with low-certainty evidence.

The research was limited by a lack of studies comparing HFNO with NIV or COT for acute respiratory failure in patients who were post lung transplantation, or for those with pulmonary embolism, pulmonary arterial hypertension, or asthma, the authors said. Other limitations included the variation in study design, study populations, and treatment protocols across the included studies. Despite these limitations, the results support the guideline recommendation for HFNO in cases of acute respiratory failure and postextubation management. However, “broad applicability, including required clinician and health system experience and resource use, remains unknown,” the authors concluded.

## Research catches up with practice

The guidelines are important at this time because “the medical literature over the past 3-4 years is catching up to what hospitalists, pulmonologists, and critical care specialists have been doing clinically over the past 6-8 years with perceived better results,” Jacqueline W. Fincher, MD, MACP, President of the American College of Physicians, said in an interview.

“HFNO has been used to a varying degree over the last 6-8 years by physicians with much-perceived improved benefit in patients who are hypoxemic on usual noninvasive therapy or conventional oxygen therapy with the impending need

for intubation or post extubation,” Dr. Fincher said. “During the COVID pandemic particularly with the attack on the respiratory system with COVID pneumonia and frequently associated ARDS [acute respiratory distress syndrome], the use of HFNO has been enormously helpful in trying to keep patients well oxygenated without having to intubate or reintubate them.”

“We now have the medical literature that supports what has been seen clinically to make the recommendations and guidelines based on the scientific evidence,” Dr. Fincher added. “If we can avoid intubation associated with the patient being sedated, unable to eat, talk, or meaningfully participate in their care or get the patient off the ventilator sooner for the same reasons, then we have significantly improved the quality of their care, decreased their risk of infection, decreased their days in the ICU and the hospital, we will have succeeded in providing the best care possible. The availability of HFNO, with much greater comfort to the patient than being intubated, is a great tool in the toolbox of respiratory care.”

“The good news is that HFNO is readily available at most hospitals, but it really requires an intensive care unit and a team of physicians, nurses, and respiratory therapists to be familiar with its use and work closely together to monitor the patient for significant changes in their respiratory status to titrate therapy,” she noted.

In the future, some areas in need of more research that might impact updates to the guidelines include “What are some areas in need of more research that might impact future updates to these guidelines? Specifics on whether initiating HFNO earlier in the course of the patient’s hypoxemic illness is better or worse, as well as the use of HFNO outside of the ICU setting,” Dr. Fincher said. “The needed monitoring of the patient to know whether their respiratory status was deteriorating and how fast would be critical along with the specific indications for titration of the HFNO.”

The evidence review was commissioned and funded by the ACP. The data come from work supported by and conducted at the Minneapolis VA Health Care System. Lead author Dr. Baldomero was supported in part by the National Institutes of Health National Center for Advancing Translational Sciences.

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# COVID-19 can be severe in children: 12% hospitalized

BY CAROLYN CRIST

About 12% of U.S. children with COVID-19 were hospitalized in 2020, and nearly a third of those had severe disease that required mechanical ventilation or admission to an intensive care unit, according to a new study published in JAMA Network Open on April 9 (2021. doi: 10.1001/jamanetworkopen.2021.5298).

That means about 1 in 9 children with COVID-19 needed hospitalization, and about 1 in 28 had severe COVID-19.

“Although most children with COVID-19 experience mild illness, some children develop serious illness that leads to hospitalization, use of invasive mechanical ventilation, and death,” the researchers wrote.

The research team analyzed discharge data from 869 medical facilities in the Premier Healthcare Database Special COVID-19 Release. They looked for COVID-19 patients ages 18 and under who had an inpatient or emergency department visit between March and October 2020.

More than 20,700 children with COVID-19 had an inpatient or emergency department visit, and 2,430 were hospitalized with COVID-19. Among those, 756 children had severe COVID-19 and were admitted to an intensive care unit or needed mechanical ventilation.

About 53% of the COVID-19 patients were girls, and about 54% were between ages 12 and 18. In addition, about 29% had at least one chronic condition.

As with COVID-19 studies in adults, Hispanic, Latino, and Black patients were overrepresented. About 39% of the children were Hispanic or Latino, and 24% were Black. However, the researchers did not find an association between severe COVID-19 and race or ethnicity.

The likelihood of severe COVID-19 increased if the patient had at least one chronic condition, was male, or was between ages 2 and 11.

“Understanding factors associated with severe COVID-19 disease among children could help inform prevention and control strategies,” they added. “Reducing infection risk through community mitigation strategies is critical for protecting children from COVID-19 and preventing poor outcomes.”

As of April 8, more than 3.54 million U.S. children had tested positive

for COVID-19, according to the latest report from the American Academy of Pediatrics and Children’s Hospital Association. Cases among children are increasing slightly, with about 73,000 new cases reported

during the first week of April.

Children represent about 13.5% of the COVID-19 cases in the country, according to the report. Among the 24 states that provide data, children represented 1%-3% of all COVID-19

hospitalizations, and less than 2% of all child COVID-19 cases resulted in hospitalization.

*A version of this article first appeared on Medscape.com.*

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# Black nonsmokers still at high risk for secondhand smoke exposure, mostly at home

BY WALTER ALEXANDER

MDedge News

Despite 30+ years of anti-smoking public policies and dramatic overall decline in secondhand smoke (SHS) exposure, nonsmoking low-income and non-Hispanic Black people remain at high risk for exposure to smoke.

## No risk-free SHS exposure

Surendranath S. Shastri, MD, of MD Anderson Cancer Center, Houston, and colleagues underscored the U.S. Surgeon General's determination that there is no risk-free level of SHS exposure in a recent JAMA Internal Medicine research letter (2021;181[1]:134-7. doi: 10.1001/jamainternmed.2020.3975).

"With the outbreak of the coronavirus disease 2019, which affects lung function, improving smoke-free policies to enhance air quality should be a growing priority," they wrote.

Dr. Shastri and colleagues looked at 2011-2018 data from the National Health and Nutrition Examination Survey (NHANES), which detailed prevalence of SHS exposure in the U.S. population aged 3 years and older using interviews and biological specimens to test for cotinine levels. For the survey, nonsmokers having serum cotinine levels from 0.05 to 10 ng/mL were considered to have SHS exposure.

While the prevalence of SHS exposure among nonsmokers declined from 87.5% to 25.3% between 1988 and 2012, levels have stagnated since 2012 and racial and economic disparities are evident. Higher smoking rates, less knowledge about health risks, higher workplace exposure, greater likelihood of living in low-income, multi-unit housing, plus having their communities targeted by tobacco companies, may all help explain higher serum levels of cotinine in populations with lower socioeconomic status.

"Multivariable logistic regression identified younger age (odds ratio, 1.88, for 12-19 years, and OR, 2.29, for 3-11 years), non-Hispanic Black race/ethnicity (OR, 2.75), less than high school education (OR, 1.59), and living below the poverty level (OR, 2.61) as risk factors for SHS

exposure in the 2017-2018 cycle, with little change across all data cycles," the researchers wrote.

## Disparities in SHS exposure

A second report from NHANES data for 2015-2018, published in a National Center for Health Statistics Data Brief (No. 396, February 2021) showed that 20.8% of non-smoking U.S. adults had SHS exposure, again with greater prevalence among non-Hispanic Black adults (39.7%), than for non-Hispanic White (18.4%), non-Hispanic Asian (20.9%), and Hispanic (17.2%)



Dr. Cataletto

adults. Exposure was also greater in the younger age groups, with SHS rates for adults aged 18-39 years, 40-59 years, and ≥60 years at 25.6%, 19.1%, and 17.6%, respectively. Lower education (high school or less vs. some college education) and lower income levels were also associated with higher levels of SHS exposure. The investigators noted that, among households with smokers, non-Hispanic Black adults are less likely to have complete smoking bans in homes, and among Medicaid or uninsured parents of any race or ethnicity, bans on smoking in family vehicles are less likely.

Overall, the prevalence of SHS exposure declined from 27.7% to 20.7% from 2009 to 2018, but the decreases were mediated by race and income.

## SHS exposure in private spaces

A research brief from the Centers for Disease Control and Prevention on SHS exposure in homes and vehicles in the U.S. among middle and high school students also found a general decline in SHS exposure over 2011-2018 in homes (26.8%-20.9%;  $P < .001$ ) and vehicles (30.2%-19.8%;  $P < .001$ ). The findings, derived from the National Youth Tobacco Survey for 2011-2019, showed that no reduction occurred in homes among non-His-

panic Black students (Prev Chronic Dis. 2020;17:200107. doi: 10.5888/pcd17.200107). Overall, a significant difference in home SHS exposure was observed by race/ethnicity: non-Hispanic Black (28.4%) and non-Hispanic White (27.4%) students both had a higher prevalence compared with Hispanic (20.0%) and non-Hispanic other (20.2%) students ( $P < .001$ ).

Progress in reducing SHS exposure in public spaces has been made over the last 2 decades, with 27 states and more than 1,000 municipalities implementing comprehen-

*The study "highlights the need for implementation of smoke-free policies to reduce exposure to secondhand smoke, especially in homes and cars and with focused advocacy efforts in highly affected communities."*

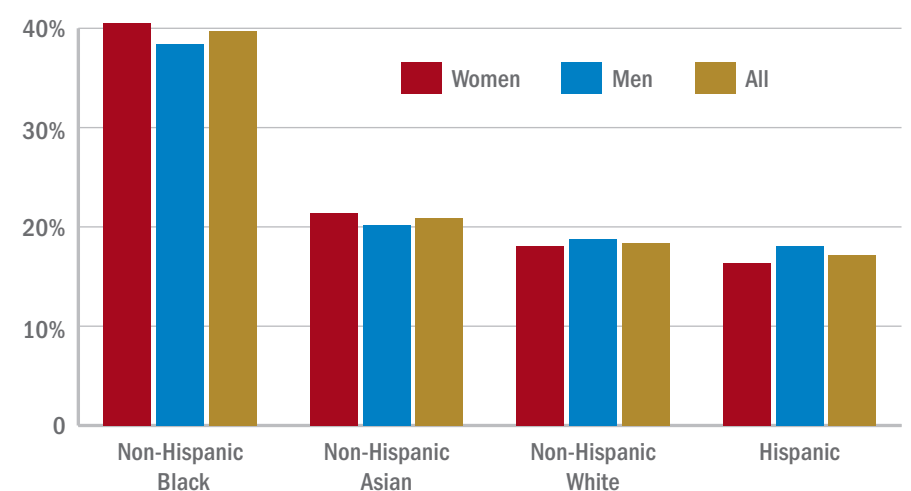
of pediatrics at NYU Long Island School of Medicine, stated that the study "highlights the need for implementation of smoke-free policies to reduce exposure to secondhand smoke, especially in homes and cars and with focused advocacy efforts in highly affected communities."

Panagis Galiatsatos, MD, MHS, assistant professor of medicine at Johns Hopkins University, Baltimore, emphasized implementation of smoke-free policies but also treatment for smokers. "I'm not at all surprised by these statistics," he noted in an interview. "Public health policies have helped us to get to where we are now, but there's a reason that we have plateaued over the last decade. It's hard to mitigate secondhand smoke exposure because the ones who are smoking now are the most refractory, challenging cases. ... You need good clinical interventions with counseling supported by pharmacological agents to help them if you want to stop secondhand smoke exposure." He added, "You have to look at current smokers no differently than you look at patients with stage IV cancer – a group that requires a lot of resources to help them get through. Remember, all of them want to quit, but the promise of well-designed, precision-medicine strategies to help them quit has not been kept. Public health policy isn't going to do it. We need to manage these patients clinically."

The investigators had no conflict disclosures.

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## Prevalence of secondhand smoke exposure in nonsmoking adults



Note: Based on data from the National Health and Nutrition Examination Survey, 2015-2018.

Source: National Center for Health Statistics



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# Is pediatric subspecialty training financially worth it?

BY JALEESA BAULKMAN

**P**ursuing fellowship training is often financially costly in terms of lifetime earnings, compared with starting a career as a general pediatrician immediately after residency, a report suggests.

Researchers found that most pediatric subspecialists – including those practicing neurology, pulmonology, and adolescent medicine – do not see a financial return from additional training because of the delays in receiving increased compensation and the repayment of educational debt.

“Most pediatric subspecialists don’t experience a relative increase in compensation after training compared to a general pediatrician, so there isn’t a financial benefit to additional training,” lead author Eva Catenaccio, MD, from the division

*Comparing results from the two study periods showed that the financial gap between general pediatrics and subspecialty pediatrics worsened over time.*

of pediatric neurology, department of neurology, Johns Hopkins University, Baltimore, told this news organization.

The findings, published online March 8 in *Pediatrics* (2021 Mar 1. doi: 10.1542/peds.2020-027771), contribute to the ongoing debate about the length of pediatric fellowship training programs. The data also provide evidence for the potential effect of a pediatric subspecialty loan repayment program.

## Pediatric subspecialty training rarely pays off

However, not all practitioners in pediatric subspecialties would find themselves in the red relative to their generalist peers. Three subspecialties had a positive financial return: cardiology, critical care, and neonatology. Dr. Catenaccio explained that this may be because these subspecialties tend to be “inpatient procedure oriented, which are often more [lucrative] than outpatient cognitive-oriented subspecialties, such as pediatric infectious diseases, endocrinology, or adolescent medicine.”

Enrolling in a pediatric fellowship program resulted in lifetime financial returns that ranged from an

increase of \$852,129 for cardiology, relative to general pediatrics, to a loss of \$1,594,366 for adolescent medicine, researchers found.

For the study, researchers calculated the financial returns of 15 pediatric subspecialties – emergency medicine, neurology, cardiology, critical care, neonatology, hematology and oncology, pulmonology, hospitalist medicine, allergy and immunology, gastroenterology, rheumatology, nephrology, adolescent medicine, infectious diseases, and endocrinology – in comparison with returns of private practice general pediatrics on the basis of 2018-2019 data on fellowship stipends, compensation, and educational debt.

They obtained most of the data from the Association of American Medical Colleges Survey of Resident/Fellow Stipends and Benefits, AAMC’s annual Medical School Faculty Salary Report, and the AAMC Medical School Graduation Questionnaire.

Richard Mink, MD, department of pediatrics, Harbor-UCLA Medical Center, Torrance, Calif., noted that it would have been helpful to have also compared the lifetime earnings of practitioners in pediatric subspecialties to academic general pediatricians and not just those in private practice.

## The financial gap has worsened

To better understand which aspects of fellowship training have the greatest effect on lifetime compensation, Dr. Catenaccio and colleagues evaluated the potential effects of shortening fellowship length, eliminating school debt, and implementing a federal loan repayment plan. These changes enhanced the returns of cardiology, critical care, and neonatology – subspecialties that had already seen financial returns before these changes – and resulted in a positive financial return for emergency medicine.

The changes also narrowed the financial gap between subspecialties and general pediatrics. However, the remaining subspecialties still earned less than private practice pediatrics.

The new study is an update to a 2011 report, which reflected 2007-2008 data for 11 subspecialties. This time around, the researchers included the subspecialty of hospitalist medicine, which was approved as a board-certified subspecialty by the American Board of Pediatrics in 2014, as well as neurology, allergy and immunology, and adolescent medicine.

**Brandon M. Seay, MD, comments:** I agree with Dr. Catenaccio and Dr. Mink that pediatric subspecialty training/work is definitely worth it, but the lifetime earnings are not the only consideration.

When I was in my pediatric residency, I considered whether going into pediatric pulmonology, which had always been an area of medicine that I was interested in, was the best choice for me. I knew I wanted to make the most difference in the lives of as many children as I could. With respiratory issues being one of the most common in pediatrics, I felt I could have the most impact by becoming a pediatric pulmonologist. That was the foremost consideration for me, not how much money I would earn.

During my fellowship training I got exposure to advocacy as a tool to improve the lives of children as well. Having a specific focus in pulmonology gave me insight into specific things that could be advocated for through community engagement and legislative advocacy. By having specific areas to focus on like addressing the dangers of vaping and delaying school start times to encourage more sleep in teenagers, I can have more impact as an advocate. The impact I can make on the lives of kids makes the extra years of training, delay in repaying student loans, and decreased overall lifetime earnings worth it to me.



“I was most surprised that the additional pediatric subspecialties we included since the 2011 report followed the same general trend, with pediatric subspecialty training having a lower lifetime earning potential than general pediatrics,” Dr. Catenaccio said.

Comparing results from the two study periods showed that the financial gap between general pediatrics and subspecialty pediatrics worsened over time. For example, the financial return for pediatric endocrinology decreased an additional \$500,000 between 2007 and 2018.

The researchers believe a combination of increased educational debt burden, slow growth in compensation, and changing interest rates over time have caused the financial differences between general pediatrics and subspecialty pediatrics to become more pronounced.

## ‘Pediatric subspecialty training is worth it!’

Despite the financial gaps, Dr. Catenaccio and colleagues say pediatric subspecialty training is still worthwhile but that policymakers should address these financial differences to help guide workforce distribution in a way that meets the needs of patients.

“I think pediatric subspecialty training is worth it,” said Dr. Catenaccio, who’s pursuing pediatric subspecialty training. “There are so many factors that go into choosing a specialty or subspecialty in medicine, including the desire to care

for a particular patient population, interest in certain diseases or organ systems, lifestyle considerations, and research opportunities.”

But it’s also important for trainees to be aware of economic considerations in their decision-making.

Dr. Mink, who wrote an accompanying commentary, agrees that young clinicians should not make career decisions on the basis of metrics such as lifetime earning measures.

“I think people who go into pediatrics have decided that money is not the driving force,” said Dr. Mink. He noted that pediatricians are usually not paid well, compared with other specialists. “To me the important thing is you have to like what you’re doing.”

A 2020 study found that trainees who chose a career in pediatric pulmonology, a subspecialty, said that financial considerations were not the driving factor in their decision-making. Nevertheless, Dr. Mink also believes young clinicians should take into account their educational debt.

The further widening of the financial gap between general pediatrics and pediatric subspecialties could lead to shortages in the pediatric subspecialty workforce.

The authors and Dr. Mink have disclosed no relevant financial relationships.

*A version of this article first appeared on Medscape.com.*



# FDA expands use of SLIT pollen allergy treatment to children

BY JALEESA BAULKMAN

**T**he Food and Drug Administration has approved a new indication for ALK's sublingual immunotherapy (SLIT) tablet Ragwitek to treat ragweed pollen-induced hay fever in children aged 5-17 years.

Ragwitek received FDA approval in 2014 to treat short ragweed pollen-induced hay fever, with or without allergic rhinoconjunctivitis, in adults aged 18-65 years. This new indication expanded that age group to include children.

The approval for Ragwitek comes with a boxed warning regarding a risk for life-threatening allergic reactions associated with the immunotherapy treatment, including anaphylaxis and severe laryngopharyngeal restriction. The package insert specifies that physicians should prescribe autoinjectable epinephrine with the drug.

"Ragwitek tablets provide a new immunotherapy treatment option for children and adolescents with seasonal ragweed allergies which often causes uncomfortable nasal symptoms and red, itchy eyes during the late summer and early fall," David I. Bernstein, MD, University of Cincinnati, Bernstein Clinical Research, said in a company press release.

Short ragweed pollen is one of the most common weed allergies. Allergic rhinitis, or hay fever, affects 10%-30% of the population worldwide, according to the American Academy of Allergy Asthma & Immunology. In the United States, approximately 7.7% of adults and 7.2% of children were diagnosed with it annually, according to the Centers for Disease Control and Prevention.

The new indication was based partly on data from a phase 3 clinical trial in children with short ragweed-induced allergic rhinitis, or hay fever, published in the *Journal of Allergy and Clinical Immunology* (2021 Apr 15. doi: 10.1016/j.jaip.2020.03.041).

In the study, researchers evaluated the efficacy and safety of the treatment in 1,022 participants aged 5-17 years with a history of ragweed-induced rhinoconjunctivitis and sensitivity to ragweed over a 20- to

28-week treatment period.

Researchers found that Ragwitek improved symptoms in children and adolescents and decreased their use of symptom-relieving medication, compared with placebo.

Among children and adolescents aged 5-17 years, the most common adverse reactions reported were throat irritation/tickle (48.3% in the Ragwitek group vs. 17.7% in the placebo group), itching in the mouth (47.8% vs. 11.2%), itching in the ear (33.9% vs. 6.3%), mouth pain (18.9% vs. 4.5%), swelling of the lips (13.8% vs. 1.2%), nausea (11.5% vs. 3.3%), swelling of the tongue (11.3% vs. 0.8%), throat swelling (10.7% vs. 1.6%), and stomach pain (10.1% vs. 4.5%).

*The FDA recommends that SLIT not be prescribed to people with severe, unstable, or uncontrolled asthma, those with a history of severe systemic allergic reactions, and those with a history of eosinophilic esophagitis.*

The FDA also recommends that Ragwitek not be prescribed to people with severe, unstable, or uncontrolled asthma, those with a history of severe systemic allergic reactions, and those with a history of eosinophilic esophagitis. The immunotherapy treatment also may not be suitable for people who are unresponsive to epinephrine or inhaled bronchodilators.

In addition, the treatment is not approved for the immediate relief of allergic symptoms in children or adults. The once-daily treatment, which contains an extract from short ragweed pollen, should begin 12 weeks before the start of ragweed pollen season and continue throughout the season, according to the FDA.

Dr. Bernstein said that the under-the-tongue immunotherapy works by targeting the specific allergy trigger and reducing allergy symptoms by "stimulating the immune system."

*A version of this article first appeared on Medscape.com.*



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# Gene dysregulation links cancer risk and night work

BY ROXANNE NELSON, RN, BSN

**W**orking night shifts has been associated with an increased risk for certain cancers, as well as other health disorders. Indeed, the World Health Organization's International Agency for Research on Cancer has classified night-shift work as "probably carcinogenic to humans."

But why night shift should elevate the risk for cancer has been unclear.

A new study shows that a simulated night-shift schedule significantly altered the normal circadian rhythmicity of genes that are involved in cancer hallmark pathways. It also found that this circadian misalignment caused circadian dysregulation of genes involved in key DNA repair pathways.

"Taken together, these findings suggest that night-shift schedules throw off the timing of expression of cancer-related genes in a way that reduces the effectiveness of the body's DNA repair processes when they are most needed," said co-corresponding author Jason McDermott, a computational scientist with the Pacific Northwest National Laboratory's biological sciences division in Richland, Wash.

The study was published online in the *Journal of Pineal Research* (2021 Feb 27. doi: /10.1111/jpi.12726).

## Study conducted among volunteers

The study was carried out among healthy volunteers who were subjected to simulated night-shift or day-shift schedules.

The cohort comprised 14 adults between the ages of 22 and 34 years who had normal nighttime sleep schedules. They were randomly assigned (seven in each group) to a simulated day-shift schedule that involved 3 days of daytime wakefulness (6 a.m.-10 p.m.), or a simulated night-shift schedule involving 3 days of nighttime wakefulness (6 p.m.-10 a.m.).

After the 3 days of simulated shift work, all participants were then kept in a constant routine protocol (used to study humans' internally generated biological rhythms independent of any external influences). As part of the protocol, they were kept awake for 24 hours in a semi-reclined posture under laboratory conditions with constant light exposure and room temperature and evenly distributed food intake (hourly isocaloric snacks).

Blood samples were collected at

3-hour intervals and used for leukocyte transcriptome analysis and DNA damage assessment.

The authors found that the circadian expression of canonical clock genes was substantially altered by the

simulated night-shift schedule vs. the day-shift schedule. Four genes (CRY1, CRY2, PER2, and NR1D2) lost their normal day-shift rhythmicity following the night-shift schedule, and NPAS2 gene expression was not

rhythmic during the day shift but exhibited circadian rhythmicity in the simulated night-shift condition. Three other genes (NR1D1, PER3, and DBP) were significantly rhythmic during both shifts.

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The team also looked at the effect of night shift on circadian rhythmicity in cancer hallmark genes, using a panel of 726 genes. The analysis showed that:

- 257 (35.4%) were rhythmic after at least one of the two simulated shift-work conditions.
- 113 (15.6%) were rhythmic in day shift only.

*“Night shift workers face considerable health disparities, ranging from increased risks of metabolic and cardiovascular disease to mental health disorders and cancer.”*

- 96 (13.2%) were rhythmic during night shift only.
- 48 (6.6%) were rhythmic during both shifts.

A subset of 10 (1.4%) genes exhibited a significant phase advance (3.7 to 8.3 hours) or phase delay (2.8 to 7.0 hours) during the night shift,

compared with the day shift.

Thus, the authors concluded, shift work caused significant disturbances in the rhythmicity of gene expression in cancer hallmark pathways.

Findings also showed that night-shift work increases endogenous and exogenous DNA damage. Endogenous DNA damage was

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generally higher after the night shift compared to the day shift, and across the 24-hour constant routine the percentage of cells with BRCA1 and g H2AX foci was significantly higher for night shift.

**Next steps**

The team said that the next step is

*Shift work caused significant disturbances in the rhythmicity of gene expression in cancer hallmark pathways.*

to conduct the same experiment with real-world shift workers who have been consistently on day or night shifts for many years to determine whether in night workers the

unrepaired DNA damage builds up over time, which could ultimately increase the risk for cancer.

If what happens in real-world shift workers is consistent with the cur-

rent findings, this work could eventually be used to develop prevention strategies and drugs that could address the mistiming of DNA repair processes, they suggested.

“Night shift workers face considerable health disparities, ranging from increased risks of metabolic and cardiovascular disease to mental health disorders and cancer,”

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co-senior author Hans Van Dongen, PhD, a professor at Washington State University in Pullman and director of the WSU Sleep and Performance Research Center, Spokane, said in a statement. “It is high time that we find diagnosis and treatment solutions for this underserved group of essential workers so that the medical community can

*This work could eventually be used to develop prevention strategies and drugs that could address the mistiming of DNA repair processes.*

address their unique health challenges.”  
The study was supported by start-up funds from Washington State University and a Center for Human

Health and the Environment grant from North Carolina State University, and in part by the United States Army Medical Research and Development Command, the Na-

tional Institutes of Health, CDMRP (Congressionally Directed Medical Research Programs) Peer Reviewed Cancer Research Program award, and the BRAVE investment.  
The authors have disclosed no relevant financial relationships.

*A version of this article first appeared on Medscape.com.*

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# Pandemic fallout: 1 in 5 clinicians considered quitting

BY DAMIAN MCNAMARA

The COVID-19 pandemic continues to take its toll on the well-being and work satisfaction of health care providers, a new survey

of more than 5,000 clinicians at an academic medical center illustrates. About one in five people reported considering leaving the workforce because of the challenges of working during the COVID-19 pandemic. In addition, 30% reported they are considering cutting back work hours. “There are a substantial number of employees and trainees who are experiencing major stress and work disruptions because of the

pandemic,” lead author Rebecca K. Delaney, PhD, said in an interview. “It is particularly alarming that people who have spent 5 or more years in training for their specialty are struggling with their work, so much

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so that they have even considered leaving the workforce or reducing their hours.”

“Being a caregiver adds another layer of difficulty for faculty, staff, and trainees who are trying to manage work and child care,” added Dr. Delaney, a researcher in the department of population health sciences, University of Utah, Salt Lake City.

The study was published online April 2 in JAMA Network Open (2021. doi: 10.1001/jamanetworkopen.2021.3997).

“This looks like an excellent survey,” Carol A Bernstein, MD, said in an interview when asked to comment. “I do not think it provides particularly new information as these challenges in the work-

place, especially for women during COVID, have been well documented in the media and the medical literature to date.”

“That said, to the extent that data helps drive solutions, I would hope that information such as this would be considered as strong further evidence that health care systems must pay close attention to the well-

being of the workforce,” added Dr. Bernstein, professor and vice chair of faculty development and well-being, departments of psychiatry and behavioral sciences and obstetrics and gynecology and women’s health, Montefiore Medical Center/Albert Einstein College of Medicine, New York.

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### When the pandemic hits home

A total of 42% of the American workforce rapidly transitioned to working from home at the onset of the COVID-19 pandemic. At the same time, many employees had to provide child care and assistance with schoolwork. This placed a burden on many individuals at aca-

demetic medical centers, and women in particular.

"Women comprise 74.9% of hospital employees, many of whom are essential clinical workers," the researchers noted. "The extent of the needs and difficulties for these workers during the pandemic remain largely unknown."

To learn more, Dr. Delaney, senior

author Angie Fagerlin, PhD, and their colleagues emailed a Qualtrics survey to 27,700 faculty, staff, and trainees at University of Utah Health. The survey was conducted Aug. 5-20, 2020, as part of a quality improvement initiative. All responses were anonymous.

Survey questions included if, because of the pandemic, people had

considered leaving the workforce, considered reducing their hours, or experienced reduced productivity. The researchers also asked about career impacts and potential solutions in terms of "work culture adaptations."

Respondents with children under 18 also were asked about child care options. Dr. Delaney and colleagues also inquired about race and ethnicity because they hypothesized that employees from underrepresented groups would likely experience the pandemic differently.

The mean age of the 5,951 (21%) faculty, staff, and trainees who completed the survey was 40 years. A majority of respondents were women, reflecting the higher proportion of women within the health system.



Dr. Bernstein

A majority (86%) identified as White or European American. About two-thirds of respondents (66%) were staff, 16% were faculty, and 13% were trainees.

### COVID-19 career concerns

Overall, 1,061 respondents (21%) "moderately or very seriously" considered leaving the workforce and 1,505 (30%) considered reducing hours. Respondents who were younger, married, a member of an underrepresented racial/ethnic group, and worked in a clinical setting were more likely to consider leaving the workforce.

The survey showed 27% felt their productivity increased whereas 39% believed their productivity decreased.

Of the 2,412 survey participants with children aged 18 years or younger, 66% reported that they did not have child care fully available.

Limitations of the study include its generalizability beyond employees of University of Utah Health. Also, respondents included a lower proportion of racial and ethnic groups, compared with national figures, "although this is mostly accounted for by the overall low population of such groups in the state of Utah," the researchers added.

The Jon M. Huntsman Presidential Endowed Chair supported the work with a financial award to Dr. Fagerlin. Dr. Delaney and Dr. Bernstein disclosed no relevant financial relationships.

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# CHEST Health Policy and Advocacy Conference

BY NEIL FREEDMAN, MD, FCCP

Conference Co-Chair

In keeping with CHEST's commitment to advocating for our patients, we recently hosted a 2-day Health Policy and Advocacy Conference. This event aimed to carry on the tradition of the annual spring meeting held by the National Association for the Medical Direction of Respiratory Care (NAMDR), which CHEST acquired last year.

In working with my Co-Chair, Katie Sarmiento, MD, MPH, we tried to stay true to what was so valuable from meetings past: convening stakeholders to discuss issues through their particular lens. While there were differences – this year, we gathered around a virtual table – the diversity of

perspectives remained intact, bridging the landscape from clinical practice, the patients and caregivers we serve, the businesses that serve the field, and the decision-makers who must be swayed to create the change we desire.

At the same time, we wanted to take the opportunity to do what CHEST does best: provide best-in-class education. We tried to shape a program that would help the entirety of CHEST membership and our partner organizations understand the key components of why and how we advocate, and we dedicated a large portion of the program to exploring our priority issues, such as



Dr. Freedman

oxygen access and home mechanical ventilation. Finally, we aimed to address issues that simply cannot be ignored, including health care disparities and the impact of telemedicine on how we practice.

Today, you can access videos from the conference for free through the online CHEST store at [Chestnet.org](http://Chestnet.org) via the e-Learning Library. In the next few *CHEST Physician* issues, you will find reporting and deep dives on some of the key sessions covered at the conference. Ahead at CHEST 2021 in October, there will be opportunities to join in the dialogue through formal sessions and networking opportunities. With thanks to my co-chair, all the faculty, and staff who supported this event, I hope you will listen, read along, and, most importantly, consider lending your lens and perspective to this continuing dialogue.

## Under new administration, best time to lobby may be now

BY TED BOSWORTH

MDedge News

### REPORTING FROM THE CHEST HEALTH POLICY AND ADVOCACY CONFERENCE

The ambitious infrastructure bill now being debated in the US Congress might be one of the best immediate opportunities to lobby for legislative or policy changes in delivery of health care during the current Biden administration, according to an analysis delivered at the annual health policy and advocacy conference sponsored by the American College of Chest Physicians.

The infrastructure bill is likely to be pushed forward in the filibuster-proof reconciliation process, which means “that some things might get passed that otherwise would not,” explained Keith S. Studdard, Vice President, Jeffrey J. Kimbell & Associates, Washington, DC.

With few exceptions, the key players in the health care team of President Joe Biden's new administration are in place, according to Mr. Studdard, who is a lobbyist and health care expert. By moving quickly to fill key positions, the new administration “got off to a good start” for a health care agenda that Mr. Studdard believes will be a focus of the Biden presidency. There is some degree of urgency.

“The amount of time [the Biden administration has] to get their agenda through is fairly limited,” Mr. Studdard reported. The problems include a slim majority of fellow Democrats in the House of Representatives (222 vs 213), no majority of Democrats over Republicans in the Senate (50 vs 50), and midterm



Keith S. Studdard

elections that are already looming.

“Midterms historically favor the opposition party,” Mr. Studdard said. He expects party lines to harden as the midterms approach, dissipating the already limited appetite for bipartisan cooperation.

The midterms provide the basis for trying to affect change in advance of legislative gridlock, but the recently announced \$2 trillion infrastructure bill is an even more compelling impetus. Infrastructure in this case is not limited to the construction of bridges and roads. Rather, this bill “is a massive package that will almost certainly touch on health care policy,” according to Mr. Studdard.

As the infrastructure bill winds its way through the legislative process, Mr. Studdard expects there will be efforts to include language that favors expansion of services and funding for health care. This includes those related to the Affordable Care Act (ACA) and the temporary modifications permitted under the CARES Act, which was passed during the early months of the COVID-19 pandemic.

For those who think that waivers and exceptions introduced in the CARES Act, such as the expansion

of telehealth, should be made permanent, “this will be your main shot on goal,” Mr. Studdard said.

The debates around the ambitious infrastructure bill are “all that we will be hearing about from the legislative standpoint for the next few months,” Mr. Studdard said. He expects major lobbying efforts in regard to this legislation from a vast array of interest groups, not just those with a stake in health care.

If the bill passes, it will likely be greatly helped by a vote under the reconciliation process. Created in 1974 to allow expedited consideration of spending legislation, the reconciliation process allows bills to be enacted with a simple majority, which is 51 votes in the Senate and 218 votes in the House. Filibustering is not permitted.

Legislation is one of two paths for altering funding and rules regarding health care in the United States. Policy is the other. For reaching decision makers with influence on policy, Mr. Studdard provided a long list of agencies, political appointees, and elected representatives that could be targeted. Many, such as the director of the Centers for Medicare & Medicaid Services (CMS), are well known, but others might be overlooked without a detailed list of the players.

As one example, he pointed to the Center for Medicare and Medicaid Innovation (CMMI), which is a relatively new organization within CMS. Led by Liz Fowler, a former Senate aide involved in writing the ACA, the CMMI has broad authority over several aspects of health policy, such as value-based care.

“The CMMI is something you should put on your radar. It moves

with more flexibility than the HHS [Department of Health and Human Services],” Mr. Studdard said.

Mr. Studdard's detailed overview of the intricacies of how to affect change in health policy and the likely trajectory under the Biden administration included frequent comments about the traits, background, and goals of the specific decision makers he identified. The implication is that personal relations matter. Mr. Studdard indicated that knowing who to contact is just the first step.

For the Health Policy and Advocacy Committee, this information is critical. In his outline of the numerous paths for influencing health care policy, Mr. Studdard's comments lead directly to strategies to lobbying goals for CHEST.

“CHEST and its Health Policy and Advocacy Committee are keeping a focus on health care policy to improve access and to improve care for our patients and reduce the burden on our providers,” according to the Chair of the Committee, Neil Freedman, MD, FCCP. Dr. Freedman is the Division Head Pulmonary, Critical Care, Allergy, and Immunology, Northshore University HealthSystem, Evanston, Illinois.

“We would hope that, in addition to the proposed infrastructure bill subsidizing some additional costs for the ACA and COBRA [Consolidated Omnibus Budget Reconciliation Act] and enhancing Medicaid eligibility, the bill would also provide some additional funding for the provider relief fund,” he said.

Mr. Studdard or his lobbying firm represent 62 clients with interests in health care policy.





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## NETWORKS

# Management of pleural infections. Appendicitis and COVID-19. Screening for PAH. Lung function testing during the pandemic

### Interventional chest and diagnostic procedures

#### Risk stratification and management of pleural infections

Pleural infection carries a significant health care burden with an estimated mortality rate between 10% and 20% in adults. Standard of care for pleural infections has traditionally included antibiotics and tube thoracostomy, with select patients requiring a surgical intervention. The landmark MIST II trial demonstrated that combination intrapleural fibrinolytic and DNase therapy led to reduced length of stay and lower surgical referral rates compared with placebo.<sup>1</sup> While the use of combination intrapleural therapy has become common in the management of these patients, controversies still exist regarding nuances related to the various aspects of this therapy. A recent position paper published in *Lancet Respiratory Medicine*<sup>2</sup> addresses these knowledge gaps and provides recommendations to offer guidance in decision-making. The consensus statement by the authors addresses the topics of intrapleural monotherapy, dosing regimen, sequence of dosing, and cost considerations amongst other things. The authors also summarize evidence and discuss a surgery first vs. intrapleural enzyme therapy first approach based on stage of empyema and presence of surgical expertise and surgical candidacy. However, the debate between early surgical intervention vs early intrapleural enzyme therapy has not been settled yet. A large prospective randomized control trial is currently ongoing to help answer this question [<https://doi.org/10.1186/ISRCTN18192121>].

Meanwhile, there has been a lack of robust validated prediction methods for selecting high-risk patients at presentation with pleural infection for an early aggressive intervention. Based on previous studies, Rahman et al.<sup>3</sup> had described the RAPID (Renal[urea], Age, fluid Purulence, Infection Source, Dietary

[albumin]) score for risk stratification of these patients. Corcoran et al.<sup>4</sup> recently conducted a prospective, observational study and validated that the RAPID risk category (Low-risk [0-2], Medium-risk [3-4], and High-risk [5-7]) can help predict mortality at 3 months. This score may prove to be a useful tool for future research directed at improving outcomes in patients with pleural infections.

Abhinav Agrawal, MD  
Samaan Rafeq, MD  
NetWork Members

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### Pediatric chest medicine

#### Appendicitis and COVID-19

During the 2020-21 year, there was an unprecedented amount of literature and studies released to the scientific and general public about the severe acute respiratory coronavirus 2 (SARS-CoV-2) syndrome, commonly referred to as COVID-19. The impressive focus on SARS-CoV-2 appeared appropriately featured given the public health concerns with contraction of the disease. While it is important to understand the potential presentations, complications, and treatments in the adult population, clinicians must be aware of the impact of this disease on children. Contrary to reports early in the pandemic, SARS-CoV-2 infection can lead to serious complications in the pediatric population. One complication is a condition called multisystem inflammation syndrome in children (MIS-C) that can mimic Kawasaki disease or toxic

*Continued on following page*

Continued from previous page

shock syndrome. In addition to the expected common clinical presentation of respiratory symptoms and fever, gastrointestinal complaints were reported in up to 84% of the infected children. Gastrointestinal symptoms may be the only complaint in this population, typically



Dr. Mull

presenting with nausea, emesis, abdominal pain, and diarrhea. The Pediatric Chest NetWork intends to highlight these gastrointestinal complaints and make clinicians aware of an ap-

pendicitis-like syndrome or even true acute appendicitis that seems to occur in association with SARS-CoV-2 infection. There is a handful of case reports and case series that discussed this phenomenon. Due to the overlap of presenting symptoms in SARS-CoV-2 infection and acute appendicitis, clinicians must astutely evaluate patients to prevent worsening complications of a missed diagnosed appendicitis.

Eric Mull, DO  
NetWork Fellow-in-Training

**Pulmonary physiology, function, and rehabilitation**  
**Lung function testing during the COVID-19 pandemic**  
The COVID-19 pandemic poses

unique challenges to caring for patients with established lung disease or new onset respiratory complaints. Although maneuvers differ across individual tests, most involve forced expiration or high ventilatory rates. They also tend to generate cough. Because the SARS-CoV-2 virus is predominantly spread via respiratory droplets, coughing, forced expiration, and high ventilatory rates will increase the risk for transmission.

Respiratory societies across the world have developed recommendations for operating a pulmonary function lab during the pandemic (*Pulmonology*. 2020 Aug 5;S2531-0437[20]30175-6; *Ann Am Thorac Soc*. 2020;17[11]:1343). In general, deferring all nonessential testing and adjusting precautions and testing volume by local infection rates is recommended. Using proper personal protective equipment (PPE), including N95 respirators for staff, enhanced cleaning of rooms and PFT equipment (per manufacturer recommendations), and allowing time for adequate air exchange between tests are recommended practices. Screening for symptoms prior to testing is mandatory, with the recognition that for pulmonary patients, the specificity for COVID-19 will be poor. Finally, testing for SARS-CoV-2, generally within 72 hours, and using negative pressure rooms, has been encouraged by all, though there is variation by institution and resources.

It remains imperative that lung function labs provide a safe environment for patients and staff. However, delays related to deferrals and the increased turnover time required for cleaning and air circulation grow worse over time. As the pandemic persists, the mounting toll on our pulmonary patients looms large – so please, get vaccinated and use proper precautions.

Thomas Decato, MD, FCCP  
Vice-Chair  
Aaron Holley, MD, FCCP  
NetWork Member

**Pulmonary vascular disease**  
**I screen, you screen, we all screen for ... PAH**

Although rare in the general population, pulmonary arterial hypertension (PAH) occurs more frequently in connective tissue disease, congenital heart disease, HIV, portal hypertension, and in carriers of gene mutations of heritable PAH. Given the high morbidity and mortality, and improved outcomes with earlier diagnosis and treatment, guidelines recommend aggressive assessment and screening for PAH in these high-risk groups (Frost A, et al. *Eur Respir J*. 2019; 53:1801904).

Effective PAH screening algo-



Dr. Mullin

rithms have been developed in systemic sclerosis. The best validated screening tool is the DETECT algorithm (Coghlan JG, et al. *Ann Rheum Dis*. 2014;73:1340), which uses clinical, laboratory, and pulmonary function test parameters in conjunction with echocardiographic findings to recommend right heart catheterization (RHC) for PH diagnosis. Multimodal assessments are more sensitive than echocardiography alone in diagnosing PAH in systemic sclerosis (Hao Y, et al. *Arthritis Res Ther*. 2015;17:7) and should be developed in other at-risk cohorts.

Recently, the DELPHI-2 study prospectively screened 55 asymptomatic adult carriers of a BMPR2 mutation – the most common genetic mutation in heritable PAH – for minimum of 2 years (Montani D, et al. *Eur Respir J*. 2020 Dec 30;2004229. doi: 10.1183/13993003.04229-2020). Using predefined symptomatic, echocardiographic, and cardiopulmonary exercise testing criteria for referral for RHC, the incidence of PAH was 2.3% per year. This study lays the foundation for a multimodal approach to screening carriers of BMPR2 mutations and emphasizes the importance of genetic counseling for idiopathic and familial PAH patients to identify mutation carriers who stand to benefit from appropriate PAH screening.

Christopher J. Mullin, MD, MHS  
Steering Committee Member

## Message from CHEST 2021 Co-Chair, Chris Carroll, MD, FCCP

A little over a year ago, none of us imagined we'd be where we are right now. The pandemic has deeply affected us all, and there have been so many losses, both professional and personal. I'm proud of how our CHEST community responded to the pandemic. The incredibly rapid pace of knowledge acquisition and the speed at which we disseminated that knowledge took a lot of combined effort, but that's nothing new to our CHEST community.

Throughout the pandemic, CHEST pushed digital education with an array of webinars, podcasts, bite-sized educational modules, and infographics. We held a highly successful, well-received CHEST 2020 online conference with just a few months of planning. I'm so excited to take what we learned about offering high-quality, digital

education and turn that into a hybrid meeting for CHEST 2021 that meets the educational needs of every participant!

At CHEST 2021, you will be presented with the latest in pulmonary, critical care, and sleep medicine for clinicians at all levels. Whether you are a trainee or an experienced clinician, there is something to learn at CHEST 2021. We are packing the agenda with experiences from live learning and simulation to high-quality education sessions and smaller problem-based learning classes.

On top of this, you have an



Dr. Carroll

amazing opportunity to network and reconnect with colleagues you haven't seen in months! Whether at Experience CHEST, in the gaming area, the Trainee and Transition Lounge, and more, CHEST 2021, as always, is the best at providing top-tier education, team-based learning, and community connections.

This will be the first hybrid meeting put on by CHEST. We came to the decision knowing that while some people are hungry to get back to having an in-person experience, others found that an online conference better fits their needs. I strongly encourage you to join us October 17-20 in Orlando, Florida, to experience the networking and growth opportunities that come from attending in person. We are following strict protocols, as recommended by the CDC, and will be requiring all

attendees to attest to being vaccinated. However, if travel isn't possible, join us for livestreamed, immersive digital learning from wherever you are in the world. Regardless of your choice, both options will allow you to engage in fun experiences, learn, and connect.

As Co-Chair of CHEST 2021, I'd like to personally invite you to participate, whether this is your first time or you've lost count how many times you've attended our annual meeting. The community at CHEST is what makes the CHEST conference special, and we are proud to be able to keep you all connected despite geographic restrictions.

Looking forward to seeing you there and connecting on Twitter at #CHEST2021.

Chris Carroll, MD, FCCP  
Co-Chair, CHEST 2021



## SLEEP STRATEGIES

## Obstructive sleep apnea and COVID-19

BY ASHIMA S SAHNI, MD;  
AND MICHELLE CAO, DO,  
FCCP

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) caused by the novel coronavirus of the year 2019 (COVID-19) has had a major impact on global health and economy. United States reported a total caseload of 28,998,834 patients and total mortality of 525,031 as of March 2021 (NPR.org; worldometer. Accessed March 8, 2021). The beginning of 2021 ushered positivity with the development of multiple highly effective SARS-CoV-2 vaccines. Although the medical world

*SARS-CoV-2 triggers a severe inflammatory response involving type-II pneumocytes and angiotensin-converting enzyme 2 pathway.*

has gained much knowledge about this deadly disease, there are many unknowns and still much to be learned.

Two early landmark studies from Italy (Lombardy) and United States (New York City area) provided initial insight on comorbid conditions associated with increased risk of severe COVID-19 infection (Richardson S, et al. *JAMA*. 2020;323[20]:2052;

Grasselli G, et al. *JAMA Intern Med*. 2020;180[10]:1345). In the United States cohort, hypertension (HTN), obesity, and diabetes (DM) were independent risk factors for severe disease, while in the Italy cohort, older age, male, COPD, hypercholesterolemia, and diabetes were independent risk factors for increased mortality. Obstructive sleep apnea (OSA) was not mentioned as a comorbid risk factor.

There is much speculation regarding OSA as an independent risk factor for severe COVID-19 infection. OSA is a common sleep-related breathing disorder with increased prevalence in men, older age, and higher body mass index (BMI); and OSA is associated with hypertension, obesity, and diabetes, all of which are risk factors for severe COVID-19. Because of the shared similarities in pathophysiology between OSA and COVID-19 (Tufik S, et al. *J Clin Sleep Med*. 2020;16[8]:1425), and shared comorbid conditions associated with increased risk of severe COVID-19 disease, OSA has been suggested as an independent risk factor for unfavorable COVID-19-related outcomes.

SARS-CoV-2 triggers a severe inflammatory response involving type-II pneumocytes and angioten-

sin-converting enzyme 2 pathway. OSA is characterized by intermittent hypoxia and sleep fragmentation, leading to a cascade of systemic inflammatory response involving oxidative stress, pro-inflammatory cytokines, endothelial dysfunction, and consequent cardiovascular injury (Jose RJ, et al. *Lancet Respir Med*. 2020;8[6]:e46; Saxena K, et al. *Sleep Med*. 2021;79:223). In this regard, OSA may contribute to COVID-19 “cytokine storm” by causing or exacerbating endothelial dysfunction, inflammation, and oxidative stress.

Multiple studies have recently been published on the impact of OSA on COVID-19 outcomes. The Coronavirus SARS-CoV-2 and Diabetes Outcomes (CORONADO) study was one of the initial studies that analyzed the relationship between OSA and COVID-19-related outcomes. This was a multicenter observational study involving diabetic patients hospitalized with COVID-19. The primary outcome was mechanical ventilation and/or death within 7 days of admission. Multivariate adjustment showed that age, BMI, and OSA, among other factors, were independently associated with risk of death on

day 7 (Cariou B, et al. *Diabetologia*. 2020;63[8]:1500). Strausz and colleagues also evaluated OSA as an independent risk factor for severe COVID-19 in a large registry of hospital discharge patients (Finn-Gen study). The authors reported that although the risk of contracting COVID-19 was the same for patients with or without OSA, after adjusting for age, sex, and BMI, OSA was associated with higher risk of hospitalization (Strausz S, et al. *BMJ Open Res*. 2021;8:e000845). Similar findings were confirmed by the Maas et al. study, which utilized a large socioeconomically diverse database composed of 10 hospital systems. Diagnoses and outcomes were identified by ICD-10 coding and medical record data. After adjustments for diabetes, HTN, and BMI, OSA conferred an eight-fold risk for COVID-19 infection, was associated with increased risk of hospitalization, and doubled the risk of developing respiratory failure (Maas MB, et al. *Sleep Breath*. 2020 Sep; 29:1-3. doi: 10.1007/s11325-020-02203-0).

Peker and colleagues conducted a prospective multicenter observational study comparing clinical outcomes of severe COVID-19 infection in patients with low vs high pretest probability of having OSA based on the Berlin questionnaire. The authors reported a clinically significant risk of poorer clinical outcomes in the high pretest probability OSA group after adjustments for age, sex, and comorbidities (Peker Y, et al. *Ann Am Thorac Soc*. 2021. Feb 17. doi: 10.1513/AnnalsATS.202011-1409OC). A timely meta-analysis including 21 studies (19 with retrospective design) with 54,276 COVID-19 patients and 4,640 OSA patients concluded poor composite outcomes including severe COVID-19, intensive care unit admission, mechanical ventilatory support, and death in association with OSA (OR – 1.72 95% CI 1.55-1.91,  $P < .00001$ ). In patients with obesity, OSA is a highly prevalent co-morbid condition. BMI, however, was not adjusted in this model (Hariyanto TI, et al. *Sleep Med*. 2021. doi: 10.1016/j.sleep.2021.03.029).

Other studies have concluded the opposite with OSA not being an independent risk factor for severe COVID-19 infection. Cade and



Dr. Sahni



Dr. Cao



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colleagues conducted a retrospective analysis from a comprehensive electronic health dataset using ICD codes to identify OSA patients with severe COVID-19 infection. A significant association between OSA and COVID-19 death was noted after adjustment for demographics (ethnicity, age, sex). However, when fully adjusted for demographics, BMI, asthma, COPD, HTN, or DM, OSA was not an independent risk factor for COVID-19-related mortality and hospitalization (Cade BE, et al. *Am J Respir Crit Care Med*. 2020;202[10]:1462). The FinnGen study (Strausz S et al. *BMJ Open Resp Res*. 2021;8:e000845). was part of a meta-analysis examining the association between OSA and severe COVID-19 with and without adjustments for BMI. This meta-analysis consisted of 15,835 COVID-19 patients including 1,294 with OSA. The authors found that OSA was a risk factor with a two-fold increased risk of severe COVID-19 infection (OR = 2.37,  $P = .021$ ). However, after adjustments were made for BMI, this finding lost statistical significance (OR=1.55,  $P=.13$ ) (Strausz S, et al. *BMJ Open Resp Res*. 2021;8:e000845).

It is worth noting that a major-

ity of studies identified OSA by indirect and imperfect methods through chart review, ICD codes, and databases. Confirmed OSA based on formal testing with a sleep study in COVID-19 patients remains a challenge. Perhaps well performed screening questionnaires,

*The jury is still out on whether OSA is a facilitator for viral replication, or an independent risk factor for poor prognosis related to COVID-19 infection, or has no clinical relevance to COVID-19.*

such as STOP-Bang, Berlin, or NoSAS, can be utilized as was the case in one study. It is also unclear if outcomes of COVID-19 infection differ in patients with treated or untreated OSA, as raised by the CORONADO study. A recent cross-sectional telephone interview survey of patients with confirmed OSA in Iran alluded to higher prevalence of COVID-19 in patients with severe OSA with suggestion of lower prevalence in patients who were currently receiving OSA treat-

ment with positive airway pressure (PAP) therapy (Najafi A, et al. *Sleep Health*. 2021 Feb;7[1]:14). This is a crucial question as PAP therapy is considered an aerosol-generating procedure (Lance CG. *Cleve Clin J Med*. 2020 May 5. doi: 10.3949/ccjm.87a.ccc003). Studies have suggested continued use of PAP therapy with additional measures to mitigate the spread of virus, since failure to use PAP could be deleterious to the patient's quality of life. Interestingly, PAP adherence seemed to have improved during the pandemic as evidenced by a telephonic survey done in New York City that showed 88% of patients with OSA used a PAP device consistently (Attias D, et al. *Eur Respir J*. 2020 Jul 30;56[1]:2001607. doi: 10.1183/13993003.01607-2020).

In summary, the jury is still out on whether OSA is a facilitator for viral replication, or an independent risk factor for poor prognosis related to COVID-19 infection, or has no clinical relevance to COVID-19. COVID-19 and OSA share comorbidities and pathways leading to a systemic inflammatory cascade. Theoretically, it would make sense that OSA is a risk factor for severe COVID-19 infection; however, it

remains to be proven. The recent studies are limited by retrospective and observational nature, imprecise OSA classification/diagnostic criteria, and confounded by difficult to control variables. Further research is needed to expand our understanding of OSA-induced intermittent hypoxemia, inflammation, and endothelial dysfunction that may play a role in COVID-19 morbidity and mortality. Until we have more clarity, close monitoring of OSA patients infected with COVID-19 is recommended along with implementation of safe protocols for continuation of PAP usage during the infectious phase. Identifying underlying comorbid conditions that contribute to worsening of a COVID-19 infectious course is a crucial step in improving clinical outcomes.

*Dr. Sahni is Assistant Professor of Clinical Medicine, Division of Pulmonary, Critical Care, Sleep and Allergy, Department of Medicine, University of Illinois at Chicago. Dr. Cao is Clinical Associate Professor, Division of Sleep Medicine and Division of Neuromuscular Medicine, Department of Psychiatry and Department of Neurology, Stanford (Calif.) University.*



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# ABIM extends MOC requirement deadlines: Prepares to launch the longitudinal knowledge assessment

BY LISA FINNEGAN

ABIM Program Manager, Physician Communications

**R**ecognizing that caring for patients with COVID continues to be the focus of many physicians, in March, the American Board of Internal Medicine (ABIM) announced that it extended all MOC requirement deadlines until 12/31/22. For those ABIM Board Certified in Critical Care Medicine, Hospital Medicine, Infectious Disease, or Pulmonary Disease, MOC requirements have been extended until the end of 2023.

In a letter to the internal medicine community, Richard J. Baron, MD, MACP, ABIM President and CEO; and Marianne M. Green, MD, Chair of the ABIM Board of Directors, said, “We know inter- nists and internal medicine sub- specialists have been on the front lines meeting the country’s needs, many experiencing the tragedy of COVID in deeply personal ways...

We also recognize the high levels of stress you may have faced over the last 12 months, and that it will likely be some time until it subsides... We hope this gives you one less thing to worry about.”

The decision means that nobody will lose ABIM certification if they are unable to complete MOC requirements this year. Recognizing every physician’s situation is different, all ABIM MOC exams will be administered as scheduled in 2021 for those who wish to take one.

In January 2022, ABIM will launch a new Longitudinal Knowledge Assessment (LKA™) ([www.abim.org/lka/](http://www.abim.org/lka/)), a more flexible and convenient way to maintain certification. Physicians who decide to delay their 2021 assessment will be able to enroll in the LKA when it rolls out (pending availability) (LKA Rollout Schedule: <https://tinyurl.com/rttd26y>), or can choose to take the traditional, 10-year MOC exam if they prefer.

The LKA for Critical Care, Hospi-

tal Medicine, Infectious Disease, and Pulmonary Disease will launch in January 2023. As these were among the disciplines most impacted by COVID, additional time is needed to create the requisite content for a high-quality assessment and is why MOC requirement deadlines for these specialties is extended an additional year to provide a transition pathway to the LKA.

Through the LKA, questions can be answered on almost any internet-connected device at any time, and physicians can access all the resources used in practice (except another person). ABIM will release

30 questions each quarter that can be answered a few at a time, or all at once. Immediate feedback with rationale and reference will be provided. As long as at least 500 of the 600 questions are answered over the 5-year cycle, the LKA Participation Requirement will be met (<https://tinyurl.com/ym6jdvk6>).

ABIM is in the process of updating the Physician Portal in light of the MOC requirements deadline extension. If you have any questions about your requirements, call 1-800-441-ABIM or email [request@abim.org](mailto:request@abim.org). For further information about the LKA, visit [abim.org/lka/](http://abim.org/lka/).

## CHEST Foundation reimagines events during the pandemic

**F**eeling lonely is one of the biggest challenges that we are faced with during this pandemic. It doesn’t matter who you are – a patient, a caregiver, or a physician – it affects us all.

Social distancing practices make it almost impossible to host in-person gatherings, which is hard on everyone, but as a philanthropic organi-

Perillo, Director, Development & Foundation Operations. To the foundation’s delight, the events not only piqued people’s interest, they brought in more than \$150,000!

### The impact of your ticket purchase

The foundation has a new motto in 2021: “When you attend an event, you tend to our mission.” In other words, every event we host raises funds for our initiatives. “We want our donors to know that while they’re having a

great time, they’re also doing their part in helping the foundation enable more people to get access to the resources they need. A ticket sale today might help a patient get better care tomorrow,” said Perillo.

### Now’s the time to attend

Several events have been planned for this spring and summer. We hope you’ll join us by registering at [chestfoundation.org](http://chestfoundation.org) and following #CHESTFoundation25 on social media:

- Irv’s Spring Splash Poker Tournament: Thursday, May 20 at 7 pm CT
  - Belmont Stakes Reception & Auction: June 5 at 5 pm CT
  - Irv’s Spring Splash Poker Tournament: June 18 at 7 pm CT
  - Wine Tasting: June 24 at 7 pm CT
  - Trivia Night: July 21 at 7 pm CT
- [Chestfoundation.org](http://Chestfoundation.org)

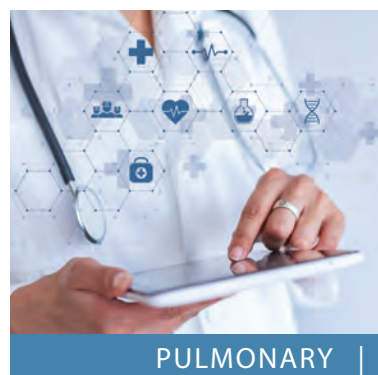


zation that focuses on community events, it’s down-right devastating. Not only does the CHEST Foundation look to events to help form a sense of camaraderie among our donors, we rely on them to help fund our projects.

That’s why we had to get creative last year and quickly reimagine our events in a totally new space ... cyberspace to be exact.

### New takes on old favorites

We’re proud to say that we hosted seven online events in 2020, including Irv Feldman’s Poker Tournament, one of our most popular fundraisers. “We wanted to continue our traditions but knew we had to do it in a different format. We learned to pivot quickly and get everything online, but we then had to cross our fingers that our donors would get onboard,” said Angela



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# CPT<sup>®</sup> and COVID-19 vaccination

BY MICHAEL E. NELSON, MD, FCCP

CHEST Physician Editorial Board Member

COVID-19 vaccination efforts were initially restricted to health department control, and physician practices were not often included as vaccination sites. However, as vaccine availability improves, physician offices will become a place where vaccines can be delivered conveniently and efficiently. It is important to understand the current and future coding and billing requirements for COVID-19 vaccination so that one's practice may be appropriately reimbursed.

The provision of COVID-19 vaccination in an office setting is not as simple as influenza or pneumonia vaccination. One can find useful information about all vaccines and specifically about COVID-19 vaccines at <https://www.cdc.gov/vaccines/ed/index.html>. This site includes video training modules and downloadable resources for clinical use, as well as patient education. This information is important as providing vaccinations may require a change in infrastructure, equipment, and clinical flow. It may not be financially advantageous for one's practice to provide COVID-19 vaccination.

If the decision is made to provide COVID-19 vaccinations, there are specific CPT codes for each vaccine and its administration (Table 1). These codes are valid for the vaccines with emergency use authorization (Pfizer, Moderna, Janssen) but not yet for as yet unauthorized vaccines (AstraZeneca). Should additional vaccines be au-

Vaccine	CPT code	Administration code	Dose schedule	Remarks
<b>Pfizer</b>	91300			16 years and older
		0001A (1st dose)	Day 1	
		0002A (2nd dose)	Day 21	
<b>Moderna</b>	91301			18 years and older
		0011A (1st dose)	Day 1	
		0012A (2nd dose)	Day 28	
<b>AstraZeneca</b>	91302			Not yet authorized
		0021A (1st dose)	Day 1	
		0022A (2nd dose)	Day 28	
<b>Janssen</b>	91303			18 years and older
		0031A (single dose)		

thorized, it is expected that new CPT codes will be added.

When a patient is vaccinated, only the administration code is used at this time. The CPT codes for the vaccine (**91300-3**) should not be used because the cost of the vaccine is currently born by the federal government. When the vaccines are available for purchase by a practice, it will then be appropriate to use the vaccine CPT code. If an evaluation and management (E/M) service is performed, the appropriate E/M service code should be reported in addition to the vaccine administration code.

For payment of the vaccine administration by Medicare, either a single claim or roster claim

can be submitted. When five or more patients are vaccinated using the same vaccine on the same day, one may submit a roster claim. Instructions on how to appropriately bill the various Medicare plans can be found at <https://tinyurl.com/hfya8888>. Guidelines for payment by private insurers should also be reviewed as well, as they will have their own requirements. If a vaccine is given to an individual who does not have any insurance coverage, reimbursement may be available through the Provider Relief Fund. These funds were made available by legislation, including the CARES act and information about claim submittal for the uninsured can be found at <https://www.hrsa.gov/CovidUninsuredClaim>.

## This month in the journal CHEST<sup>®</sup>

### Editor's picks

BY PETER J. MAZZONE, MD, MPH, FCCP

Editor in Chief

Clinical outcomes and healthcare resource utilization associated with reslizumab treatment in adults with severe eosinophilic asthma in real-world practice.  
*By Dr. M. Wechsler et al.*

Corticosteroid therapy is associated with improved outcome in critically ill COVID-19 patients with hyper-inflammatory phenotype.  
*By Dr. H. Qiu, et al.*

Quantitative emphysema on low-dose computed tomography of the chest and risk of lung cancer and airflow obstruction: An analysis of

the National Lung Screening Trial.  
*By Dr. M. Han, et al.*

How I Do It: Endobronchial valves for the treatment of advanced emphysema.  
*By Dr. D-J. Slebos, et al.*

Prolonged hospitalization following acute respiratory failure.  
*By Dr. M. Marmor, et al.*

How I Do It: Assessing patients for air travel.  
*By Dr. J. Mandel, et al.*

Development and validation of algorithms to identify pulmonary arterial hypertension in administrative data.  
*By Dr. K. Gillmeyer, et al.*



Sleep apnea and insomnia: Emerging evidence for effective clinical management.  
*By Dr. J. Ong, et al.*

Shades of gray: Subsolid nodule considerations and management.  
*By Dr. L. Azour, et al.*

## In memoriam

CHEST has been informed of the following deaths of CHEST members.

We extend our sincere condolences.

Noe Zamel, MD (2020)

Stuart Craig Lennox, MD (2018)

Teruo Hirose, MD, PhD, FCCP

Priscilla S. A Sarinas, MD, FCCP

Stephen Jenkinson, MD, FCCP (2021)

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